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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER
NGUYEN, P

ART UNIT 2732
PAPER NUMBER 2

DATE MAILED: 12/30/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/174,002

Applicant(s)

Erik H. Boch, Alan Jaakkola

Examiner

Phuongchau Ba Nguyen

Group Art Unit

2732



☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-18 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-18 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Drawings

1. The drawings are objected to because all dots in figures 1, 4, 7 should be removed for more clarity; and numbers 10, 11, 13, 14, 15 in figure 1, number 51 in figure 4, number 70 in figure 7, and all numbers in figure 2, 3, 5, 6 should be labeled with descriptive legends.

Correction is required.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: number 66 on line 11 of page 6 was not on the figure 6. Correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1, 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ugland et al (5,581,548).

Ugland et al discloses a cell in a cellular TDMA mobile radio system having a base station in the center and omnidirectional antennas, and many mobile stations communicate with

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base stations by transmission of radio signals. The base stations (BSs) are movable within a cell and from one to another. All base stations (BSs) are connected to a mobile switching center (MSC) by radio link. In figure 1 discloses an umbrella cells each covering an area also covered by a group of micro cells. Base stations located in the vicinity of the cell borders and with sector antennas. Some cells may be served by more than one base station (col. 7, 53-col.8, 20).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 8, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ugland et al as applied to claim 1 above, and further in view of Anderson et al (5,768,264).

Ugland et al does not disclose a plurality of overlapping cellular areas each having a base station with a transceiver for bi-directional communication with Network Interface Units (NIUs) within cellular area, and comprising ATM Radio Interface Cards (ARICs) at each base station for bi-directional communication with Network Interface Units (NIUs) in cellular area, and for point to point communication with ARICs in other base stations. Anderson et al discloses in figure (1A) a communication system (101) for communication among a plurality of user stations (102) may include a plurality of cells (103), each with base station (104), typically located at the center

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of the cell (103). Each station (base and user stations) comprises a receiver and a transmitter. User stations communicate with base stations by TDMA. And in figure (1B) discloses a geographical region is divided into a plurality of cells (103) (col.3, 26-47). Therefore, it would have been obvious to one skills in the art at the time of the invention was made to replace a transceiver which function as well as combination of a receiver and a transmitter at each base station or mobile station for advanced in lighten the weight and space of portable cell phone or movable base station. NIUs are inherent in mobile stations for capability to communicate with base stations.

Since base station can communicate with many mobile stations and more than one base station in cellular area, the ARICs read on the transceiver which function as interface system in base stations of Anderson et al. Even though the reference does not implement the interface feature in transceivers at base stations as ARICs (ATM Radio Interface Cards), but it would have been obvious to implement this feature as ARICs for advanced in upgrading the interface system in base stations and if interface systems are cards then would be more convenient for removed from the base stations.

Also, since Ugland et al discloses that some cells can communicate with more than one base station, then as Anderson et al discloses transceiver for transmitting/receiving signal. It would have been obvious to one skills in the art to combine these two features of Ugland et al and Anderson et al to obtain the feature of point to point communication with ARICs at other base stations.

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7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ugland et al.

Ugland et al does not disclose an interface system of a broadband wireless network is an asynchronous transfer mode (ATM) system. It would have been obvious to mention the broadband wireless network is an ATM system, since this feature is a well known feature in the art.

8. Claim 4, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ugland et al.

Ugland et al does not disclose ARIC in designated base station controlled by a network manager. However, Ugland et al discloses that base stations connected to MSC (Mobile Switching Center) and connected to a fixed public telephone network or a similar fixed communication network (col.7, 61-col.8, 10 and also see figure 1). It would have been obvious to one skills in the art at the time of the invention was made to prefer Mobile Switching Center as a network manager for controlling the base stations communication.

9. Claims 6, 7, 9, 10, 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ugland et al and Anderson et al as applied to claims 1, 3, 8, 14 above, and further in view of Dixon (5,640,674)

Ugland et al and Anderson et al do not disclose TDMA ARICs providing for communication from base station to NIUs and FDMA ARICs providing for communication from NIUs to base station and bi-directional intercell radio communication. Dixon discloses a receiver in a wireless communication system distinguishing which signal originated from the first cell (203) or adjacent cell (206) (col.2, 50-67). The FDMA and TDMA methods are common

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method in the art, FDMA for separating frequency assigned to each communication channel, TDMA for separating timeslot in a periodic time frame assigned to each channel (col.1, 15-33). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to include the feature of TDMA and FDMA method into the ATM radio interface cards for communication between base stations and users stations within cellular area to avoiding the interference of frequencies to adjacent cells and congestion in communication channel.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding the method claim, claim 12 is rejected as vague and indefinite since claim 12 is disclosed "additional ARICs implementing to increase coverage within each cell", it is suggested that the applicant revises or define clearly and concisely what kind of coverage would be increase if there is additional ARICs was implemented. See Ex parte Erlich, 3 USPQ 2d 1011 at 1017[6].

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12. Claims 12, 13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ugland et al, Anderson et al, and Dixon as applied to claims 1, 8, 9, 14 above, and further in view of Schaeffer et al (5,455,821).

Ugland et al, Anderson et al, and Dixon do not disclose additional ARICs implementing to increase coverage within each cell and to communicate with additional base stations in adjacent cellular areas, and broadband wireless access is scalable by increasing the number of ARICs at selected base stations. Schaeffer et al discloses a typical cellular communication system including a plurality of cells, each cell being serviced by a base station and for providing communication services to mobile units operating within a cell. Each base station includes a plurality of transceivers which operate to communicate on an allocated communication resource with a mobile station. Base stations also include transceivers for providing control and signaling information over dedicated resources to mobile units operating within a cell (col.3, 9-col.4, 23). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to add more ARICs to increase the speed of interface systems in base stations for communicating with mobile stations or other base stations in adjacent cellular areas since Schaeffer et al mentions the feature of base station comprising plurality of transceivers, which is the interface phase, for communicating with mobile units or base stations. Also, since Schaeffer et al discloses base stations may including dedicated transceivers for providing control and signaling information over dedicated resources to mobile communication units operating within the cell, it appears inherent that the broadband wireless is scaleable by increasing the

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numbers of ARICs at selected base stations. It would have been obvious to only increase a certain amount to ARICs at specific base stations that have high traffic in communication with mobile stations and other base stations to avoid the congestion in the system at the interface phase.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is (703) 305-0093.

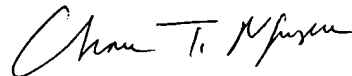
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Olms, can be reached on (703) 305-4703. The fax number for this group is (703)305-9509.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-3900.

PN

P. NGUYEN

December 21, 1998



CHAU NGUYEN
PRIMARY EXAMINER